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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,260	10/01/2001	Veronique Zimpfer	109555	5142

			EXAMINER
25944	7590	05/19/2005	DO, CHAT C

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ALEXANDRIA, VA 22320

ART UNIT	PAPER NUMBER
2193	

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/966,260	ZIMPFER ET AL.
	Examiner	Art Unit	
	Chat C. Do	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 December 2004</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-15</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-15</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This communication is responsive to Amendment filed 12/22/2004.

2.   Claims 1-15 are pending in this application. Claims 1-3 are independent claims. In

Amendment, claims 13-15 are added. This Office Action is made final.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 2, 5, 8, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by the

admitted prior art.

Re claim 2, the admitted prior art discloses in pages 1-2 of the present invention a

calculation method for producing a recursive digital filter (e.g. 0001), the method

implemented in a signal processor working with integers, comprising calculating (e.g.

using the transfer function F(Z) in page 1) an output signal of sample n based on an

algebraic sum of input and output values of signals sampled at a selected point in time

considered and at previous points in time (e.g. equation of y(n) in page 1), to which

coefficients characteristic of the filter have been assigned (e.g. a_i and b_i in page 1); and

applying a chosen scale factor (e.g. K) to remainders of integer divisions, the remainders

being the result of calculating the output values of the previous samples (e.g. output of

signal after going through 1/K).

Re claim 5, the admitted prior art further discloses in pages 1-2 of the recursive

digital filter (lines 5-6 in page 1) produced by using the calculation (Figure 1 with

feedback system and page 2 lines 1-3).

Re claim 8, the admitted prior art further discloses in pages 1-2 of the present

invention an active sound protection system (lines 7-9 in page 1) using the calculation.

Re claim 11, the admitted prior art further discloses in pages 1-2 of the present

invention a negative feedback regulation system (lines 7-9 in page 1) using the recursive

digital.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   Claims 1, 3-4, 6-7, 9-10, and 12 are rejected under 35 U.S.C. 103(a) as being obvious

over the admitted prior art in view of Zandi et al. (U.S. 6,216,145).

Re claim 1, the admitted prior art discloses in pages 1-2 of the present invention a

calculation method for producing a recursive digital filter (0001), the implemented in a

signal processor working with integers, comprising calculating (using the transfer

function F(Z) in page 1) an output signal of sample n based on an algebraic sum of input

and output values of signals sampled at the point in time considered and at previous

points in time (equation of y(n) in page 1), to which coefficients characteristic of the filter

have been assigned (a_i and b_i in page 1), applying a chosen scale factor (K) chosen is

applied to the remainders of the integer divisions, the remainders being the result of

calculating the output signals of the previous samples (output of signal after going

through 1/K). The admitted prior art does not disclose the other calculation stage

rounding to the default integer value coming from dividing the output signal by the scale

factor is replaced by rounding to the closest integer to the real-number quotient.

However, Zandi et al. also disclose in Figure 6A a filter function (603) having a last

calculation stage (604) to round the output result (output of 603) to the closest integer

(output of round to integer box 604). Therefore, it would have been obvious to a person

having ordinary skill in the art at the time the invention is made to add a rounding

calculation stage as seen in Zandi et al.'s invention into the admitted prior art's invention

because it would enable to reduce error and provide the optimum solution.

Re claim 3, it has limitations cited in claim 1. Thus, claim 3 is also rejected under

the same rationale as cited in the rejection of rejected claim 1.

Re claim 4, the admitted prior art further discloses in pages 1-2 of the present

invention a digital filter (lines 5-6 in page 1) produced by using the calculation.

Re claim 6, it has limitations cited in claim 4. Thus, claim 6 is also rejected under

the same rationale as cited in the rejection of rejected claim 4.

Re claim 7, the admitted prior art further discloses in pages 1-2 of the present

invention an active sound protection system (lines 7-9 in page 1) using the calculation.

Re claim 9, it has limitations cited in claim 7. Thus, claim 9 is also rejected under the same rationale as cited in the rejection of rejected claim 7.

Re claim 10, the admitted prior art further discloses in pages 1-2 of the present invention a negative feedback regulation system (lines 7-9 in page 1) using the recursive digital.

Re claim 12, it has limitations cited in claim 10. Thus, claim 12 is also rejected under the same rationale as cited in the rejection of rejected claim 10.

7.   Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being obvious over the admitted prior art in view of Zandi et al. (U.S. 6,216,145) as applied to claims 1 and 3 respectively above, and further in view of Marcian et al. (U.S. 3,619,586).

Re claim 13, the admitted prior art in view of Zandi et al. do not disclose the calculating and applying steps are performed during a single cycle of the recursive digital filter. However, Marcian et al. disclose in Figure 5 a method of performing recursive digital filter in a single cycle (e.g. abstract and col. 8 lines 45-60). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention is made to perform the recursive digital filter in a single cycle as cited in Marcian's invention into the admitted prior art in view of Zandi et al.'s invention because it would enable to produce the result of the recursive digital cyclically faster.

Re claim 15, it has limitations cited in claim 13. Thus, claim 15 is also rejected under the same rationale as cited in the rejection of rejected claim 13.

8.   Claim 14 is rejected under 35 U.S.C. 103(a) as being obvious over the admitted prior art

in view of Marcian et al. (U.S. 3,619,586).

Re claim 14, the admitted prior art does not disclose the calculating and applying

steps are performed during a single cycle of the recursive digital filter. However,

Marcian et al. disclose in Figure 5 a method of performing recursive digital filter in a

single cycle (e.g. abstract and col. 8 lines 45-60). Therefore, it would have been obvious

to a person having ordinary skill in the art at the time the invention is made to perform

the recursive digital filter in a single cycle as cited in Marcian's invention into the

admitted prior art's invention because it would enable to produce the result of the

recursive digital cyclically faster.

Response to Arguments

9.   Applicant's arguments filed 12/22/2004 have been fully considered but they are not

persuasive.

a.   The applicant argues in page 5 for claims 3, 6, 9, and 12 that the last Office action

incorrectly rejected claim 3 because claim 3 does not recite "wherein the stage is coupled

with two other.... of the previous samples" as cited in the rejection.

The examiner respectfully submits that a typo of numbering claims was existed in

the last Office action. Claims {1, 4, 7, 10} and {3, 6, 9, 12} are rejected under

103 as obvious over the admitted prior art in view Zandi et al. Claims {2, 5, 8,

11} are rejected under 102 as anticipated over the admitted prior art as clearly

corrected in the above rejection. Since claim 3 has same limitations as cited in

claim 1, claim 3 is also rejected under the same rationale as cited in the rejection
of rejected claim 1.

b.   The applicant argues in page 6 second paragraph for claims 1-2 that the admitted

prior art does not disclose a step of applying a chosen scale factor to remainders of

integer divisions wherein the remainders being a result of calculating the output of values

of the previous samples.

The examiner respectfully submits that the admitted prior art clearly discloses

teaches a step of applying a chosen scale factor to remainders of integer divisions

wherein the remainders being a result of calculating the output of values of the

previous samples in the transfer function $F(Z)$ and temporal function $y(n)$ in page

1 under the background of the invention wherein the scale factor is $1/K$ and the

remainder of division is summation of b_i over summation of a_j. The previous

samples are described in the transfer function with Z^{-1} as indicating a delay

version (e.g. one unit) of the samples.

c.   The applicant argues in page 6 fourth paragraph for claims 1-2, 4-5, 7-8, 10-11

that the admitted prior art does not disclose the "applying a chosen scale factor" or

"changing a number" features of claims 1 and 3, nor the zandi's reference. ·

The examiner respectfully submits that inherently all the scale factors cited in the

transfer function $F(Z)$ and temporal function $y(n)$ of the admitted prior art must be

chosen mathematically for optimizing the recursive filter in the applications.

Conclusion

10.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The

examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chaki Kakali can be reached on (571) 272-3719. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do
Examiner
Art Unit 2193

May 11, 2005

TODD INGBERG
PRIMARY EXAMINER